

## REMARKS

### 1. Summary of Office Action

In the Office action mailed June 2, 2006, the Examiner objected to the lack of formal drawings. The Examiner also objected to the abstract of the disclosure under M.P.E.P § 608.01(b), for having more than 150 words. Finally, the Examiner rejected pending claims 1-30 under 35 U.S.C. § 102(e) as being allegedly anticipated by U.S. Patent No. 6,452,933 (Duffield).

### 2. Response to Objections to the Drawings

The Examiner objected to the lack of formal drawings, but noted that informal drawings are acceptable for examination purposes. Thus, Applicants will submit formal drawings upon allowance of this application.

### 3. Response to Objections to the Abstract

As noted above, the Examiner objected to the abstract because it contained more than 150 words. Applicant has herein provided a replacement abstract on a separate page, and therefore respectfully requests that the Examiner withdraw the objection.

### 4. Status of the Claims

Claims 1-30 are pending, of which 1, 5, 6, 10, 11, 14, 15, 18 and 19 are independent, and the remainder are dependent. Each of the independent claims involves either executing tasks or scheduling tasks in different time partitions.

Independent claim 1 is directed to a data processing system that executes tasks in different time partitions. Available slack is determined and allocated to tasks in different time

partitions.

Independent claim 5 is directed to a machine readable medium with elements similar to claim 1. It further recites that tasks are scheduled to execute in different time partitions.

Independent claim 6 is directed to a data processing system that executes tasks in different time partitions. Unscheduled execution time is collected from at least one time partition and is allocated to a task in a different time partition.

Independent claim 10 is directed to a machine-readable medium having instructions stored thereon capable of causing a processor to carry out a method which schedules tasks to execute in different time partitions, collects unscheduled execution time from at least one time partition; and allocates the unscheduled execution time to a task in another time partition.

Independent claim 11 recites a method of scheduling essential and non-essential tasks in a time-partitioned system. The method comprises determining available slack from the group consisting of timeline slack and reclaimed slack, pooling available slack in a common slack pool, and allocating slack from the common slack pool to tasks

Independent claims 14 and 15 have elements similar to claim 11. Claim 14 further describes scheduling tasks to execute in different time partitions, while claim 15 allocates slack to a task in any time partition.

Independent claim 18 is a machine-readable medium version of claim 15.

Independent claim 19 is directed to a time-partitioned system with a processor that executes a plurality of essential and non-essential tasks. Each task has at least one worst case execution time associated with it. An executive is in communication with the processor and controls dispatching of tasks on the processor. The executive has a first module that

determines available slack and a second module that allocates the available slack to tasks in different time partitions.

## **5. Response to § 102 Rejections**

According to M.P.E.P. § 2131, in order to establish that a prior art reference anticipates a patent claim, an Examiner must establish that the reference teaches (expressly or inherently) every element recited by the claim, in as complete detail as recited in the claim. Applicant respectfully traverses the § 102(e) rejections of independent claims 1, 5, 6, 10, 11, 14, 15, 18 and 19 over Duffield, because Duffield does not teach all of the limitations of any of these claims. At a minimum, Duffield does not teach the elements of executing tasks or scheduling tasks in different time partitions.

Applicants' claimed invention involves providing task scheduling in an environment within a time-partitioned system. Specification at 4, lines 4-24. In a time partitioned system, time is divided into a group of partitions, and each partition is provided with a certain amount of execution time. *Id.* at 3. A drawback of time partitioning is that it can result in unused processor capacity if unused processing time in one partition is not made available to other partitions. *Id.* This unused processor capacity is called slack. One way Applicants' invention overcomes this problem is by determining available slack and allocating slack to other tasks in different time partitions.

Duffield, other the other hand, does not deal with time-partitioning. Instead, Duffield teaches a modified weighted fair queuing system to optimize bandwidth in a packet-based communication network. Duffield, Col. 3, Lines 13-17. Packets enter a series of weighted queues. *Id.* at Col. 4, Lines 11-15. A shaper device forwards the packets from the queues to a rate proportional server at a rate equal to the queue's weight. *Id.* at Col. 3, Lines 13-17. If the

rate proportional server is empty, another server can take packets from one of the queues and forward them to their destination. *Id.* at Col. 4, Lines 63-67, Col. 5; Lines 1, 30-33.

In rejecting independent claims 1, 5, 6, 10, 11, 14, 15, 18, the Examiner cited Col. 2, Lines 33-35, 51-59; Col. 3, Lines 13-17, 30-33; Col 4, Lines 6-8, 18-23; Col. 5, Line 55, and Col. 6, line 10 as allegedly teaching scheduling or executing tasks in different time partitions. However, the cited portions, like the remainder of Duffield, do not teach these functions. Instead, the cited portion of Duffield teaches rerouting packets from lower priority queues in an effort to optimize bandwidth. Nowhere in Duffield do tasks execute in different time partitions, nor are tasks scheduled to execute in different time partitions.

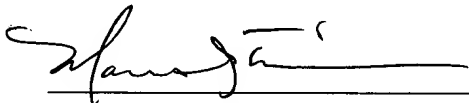
Because Duffield does not teach all of the elements of any of Applicants' claims, Duffield does not anticipate any of the claims. Consequently, Applicants submit that the claims are allowable. Thus, Applicants respectfully request favorable reconsideration and allowance of all of the claims.

### CONCLUSION

Applicants respectfully submit that all rejections have been overcome and therefore respectfully request allowance. If the Examiner believes it to be helpful, he is invited to contact the undersigned representative by telephone at (312) 935-2352.

Respectfully Submitted,

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